**Modeling Complex In-Stream Flow Requirements with HEC-ResSim**

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**Abstract**: The Hydrologic Engineering Center (HEC) has developed a new reservoir simulation model, HEC-ResSim as the successor to the well-known HEC-5. Useful for reservoir operations both for flood management as well as flow augmentation, HEC-ResSim represents a powerful new tool for the water manager. Although downstream constraints for reservoir operation are often illustrated by maximum flow or stage limits to prevent flooding, minimum flow requirements are significant regulation objectives in environmental restoration studies. The parameters that influence flow requirements may be complex, such as time of year, water temperature, hydrologic conditions, and simultaneous operations by a reservoir system. The reservoirs designated to meet the flow requirements may have multiple and/or conflicted constraints on their operation. Flexible downstream control functions and system operations available in HEC-ResSim make it relatively easy to model complex operational requirements.